

ABSTRACT OF THE DISCLOSURE

A process of fragmenting and labeling a synthetic or natural nucleic acid, comprising the steps of providing a mixture containing a nucleic acid, a labeling agent containing a detectable label, and at least one multivalent metal cation in a substantially aqueous solution; chemically fragmenting the nucleic acid in the mixture to produce a multiplicity of nucleic acid fragments; and attaching at least one label to at least one of the nucleic acid fragments to produce a detectably labeled nucleic acid fragment.